

Final Report SSI 2023

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Title

Train station sound simulation

Introduction

With this project we hope to show our everyday lives. Sometimes things make us laugh and sometimes annoy us, just like the traffic situation last month.

So we aim to simulate the sound of a train station, interacting with the physical space while adding unpredictable events.

Forms of Input

Distance sensors - Arduino

Form of Output

Based on pre-recorded sounds

Interactions

We set the distance sensors on both sides of the laptop to simulate two groups of people, using the left and right channel sounds separately.

1. Sound with physical space

The station we designed has a dynamically changing background sound. The sound of both groups' discussions can be heard when the user is far from two groups of people.

As the user approaches one of the groups, the sound of that group will become louder with closer distance. Also, the sound of that group will suddenly disappear when the user becomes too close, as they find that someone is approaching.

2. Unpredictable events

Additional sounds can appear at any time. There may be a sudden laugh or broadcast of train cancellation, which results in different feedbacks. For instance, after the sudden laugh, it will suddenly become quiet or come with laughing sound as well.

Problems we ran into

- At first there were some strange numbers when outputting distance numbers from the Arduino to Plugdata. Later we found out that was because the result was printed in the Arduino code.
- To use "spigot~" we needed to download a new library, but the Windows and Mac versions of Plugdata have different names for the library and different approaches to use it, which confused us. We solved this later by reading the help document.

- When the Windows PC is connected to the external speakers, it does not work and a MOTU driver needs to be downloaded.
- Unpredictable events are achieved by using “random”. But sometimes it can take a long time for these events to happen. We spent a lot of time tuning the intervals and numbers of “random” in order to get 3 events to appear in the presentation.
- There is a pause when switching between the left and right channels of the speakers. At first we thought it was a problem with the program, until we tried to play a Bach song and found out it was a problem with the equipment.

Final results

We have basically fulfilled the ideas in the proposal. We successfully completed the dynamically changing background sounds and the two groups of conversations that will increase in volume and eventually disappear depending on the distance.

We also did a good job with the unpredictable events. When a random laugh occurs it may be followed by louder laughs from others, or nothing. In the proposal, we intend to use the sounds of rain and wind as special sounds, but due to last month's frequent train cancellations, which gave us new inspiration, we changed this event to a broadcast of a train cancellation (thanks for YunYun and Sybil's recordings).